

LEH-35B-98
U.S. Ser. No. 09/493,891

AMENDMENTS

To the Claims:

This listing of claims will replace all prior versions, and listings, of the claims in the application:

Listing of Claims:

3. (Currently Amended) A method for the synthesis of a lactone of polysaccharide carboxylic acids which comprises (i) providing the free acid form of the polysaccharide as a finely-powdered, anhydrous carboxylic acid with minimal sodium and potassium carboxylate content; (ii) lactonizing said polysaccharide by thermal dehydration ~~for a period greater than five hours in an anhydrous non-nucleophilic solvent;~~ and (iii) collecting the resulting lactone product, wherein said polysaccharide carboxylic acid is selected from the group consisting of carboxy- and carboxymethyl cellulose, carboxy- and carboxymethyl cyclodextrin, carboxy- and carboxymethyl starch, carboxy- and carboxymethyl chitosan, and pectin.

5. (Currently Amended) A method according to Claim 3 ~~which further comprises conducting said lactonization in a refluxing media~~ wherein the solvent is selected from the group consisting of xylene, toluene, diglyme, and acetonitrile.

6. (Currently Amended) A method according to Claim 5 wherein the polysaccharide carboxylic acid is carboxymethyl-cellulose and the solvent is diglyme. Lactonizing consists of:
(i) suspending the carboxymethyl cellulose in anhydrous diglyme;
(ii) heating the suspension to about 150°C for about 24 hours;
(iii) removing the diglyme solvent; and
(iv) collecting the lactone.

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7. (Currently Amended) A method according to Claim 5 wherein the polysaccharide carboxylic acid is pectin acid and the solvent is toluene. Lactonizing consists of:

- (v) (i) ~~suspending the pectin in anhydrous toluene;~~
- (vi) (ii) ~~heating the suspension for about 24 hours;~~
- (vii) (iii) ~~removing the toluene solvent; and~~
- (viii) (iv) ~~collecting the lactone.~~

8. (Currently Amended) A method according to Claim 5 wherein the polysaccharide carboxylic acid is carboxymethyl-starch and the solvent is diglyme. Lactonizing consists of:

- (i) ~~converting the starch to the free acid;~~
- (ii) ~~suspending the free acid in anhydrous diglyme;~~
- (iii) ~~heating the suspension;~~
- (iv) ~~removing the diglyme solvent; and~~
- (v) ~~collecting the lactone.~~

9. (Previously Amended) A polysaccharide carboxylic acid lactone product made in accordance with the method of Claim 3.

15. (Canceled)

16. (New) A polysaccharide carboxylic acid lactone product made according to a method for the synthesis of a lactone of polysaccharide carboxylic acids comprising:

- (i) providing the free acid form of the polysaccharide as a finely-powdered, anhydrous carboxylic acid with minimal sodium and potassium carboxylate content;
- (ii) lactonizing said polysaccharide by heating in an anhydrous non-nucleophilic solvent; and
- (iii) collecting the resulting lactone product,

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wherein said polysaccharide carboxylic acid is selected from the group consisting of carboxy- and carboxymethyl cellulose, carboxy- and carboxymethyl cyclodextrin, carboxy- and carboxymethyl starch, carboxy- and carboxymethyl chitosan, and pectin, and wherein said polysaccharide carboxylic acid lactone is free of residual chemical activators and promoters.

17. (New) A polysaccharide carboxylic acid lactone product made in accordance with the method of Claim 16, wherein said polysaccharide carboxylic acid is carboxymethyl cellulose.

18. (New) A polysaccharide carboxylic acid lactone product made in accordance with the method of Claim 16, wherein said polysaccharide carboxylic acid is pectin.

19. (New) A polysaccharide carboxylic acid lactone product made in accordance with the method of Claim 16, wherein said polysaccharide carboxylic acid is carboxymethyl starch.

20. (New) A polysaccharide carboxylic acid lactone product made in accordance with the method of Claim 16, wherein said polysaccharide carboxylic acid is carboxymethyl cyclodextrin.

21. (New) A polysaccharide carboxylic acid lactone product made in accordance with the method of Claim 16, wherein said polysaccharide carboxylic acid is carboxymethyl chitosan.

22. (New) A polysaccharide carboxylic acid lactone product made in accordance with the method of Claim 16, wherein said polysaccharide carboxylic acid is carboxy starch.

23. (New) A polysaccharide carboxylic acid lactone product made in accordance with the method of Claim 3, wherein said polysaccharide carboxylic acid is selected from the group consisting of carboxy- and carboxymethyl cyclodextrin, carboxy- and carboxymethyl starch, carboxy- and carboxymethyl chitosan, and pectin.

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